

Fig. 2

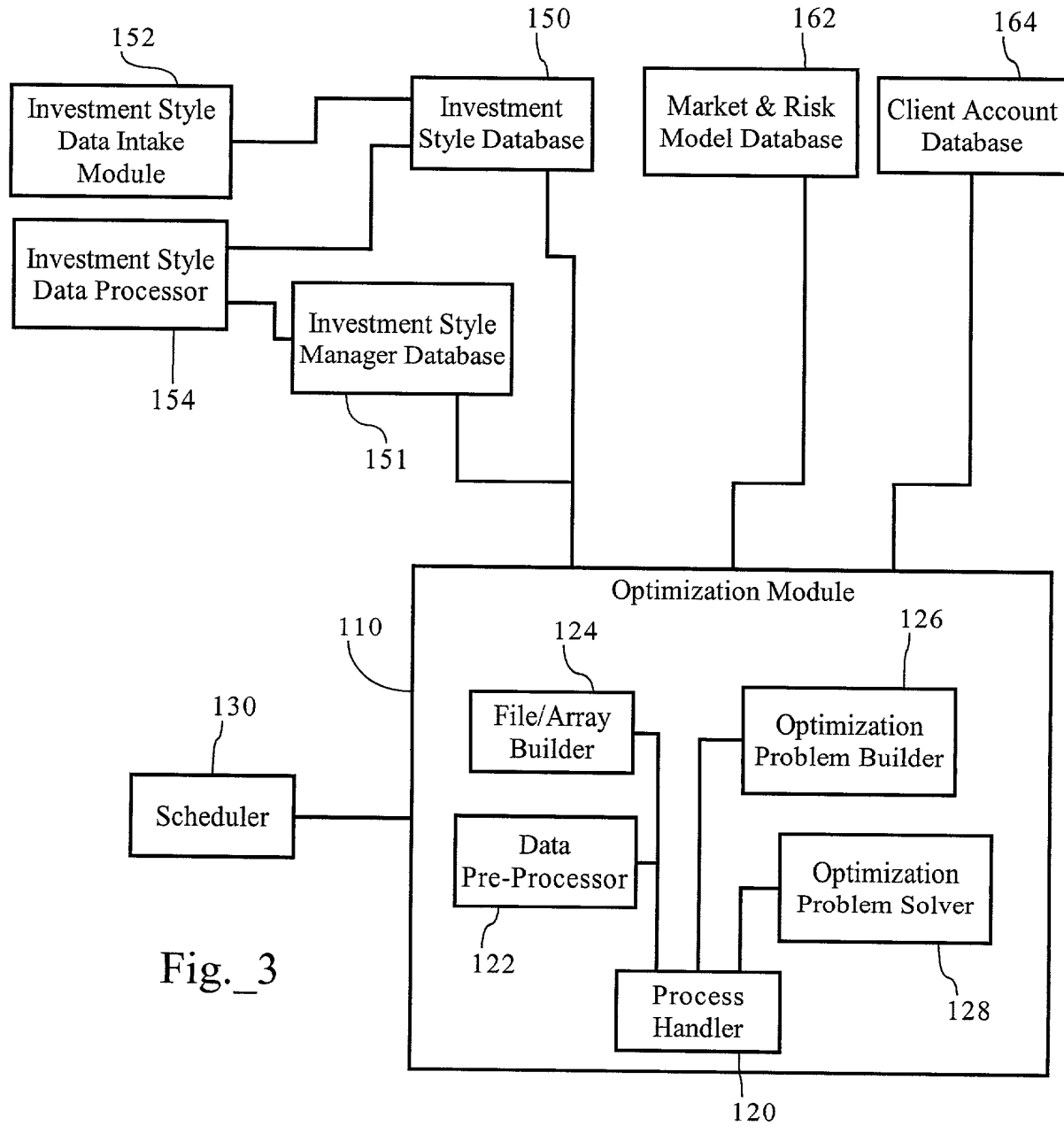


Fig._3

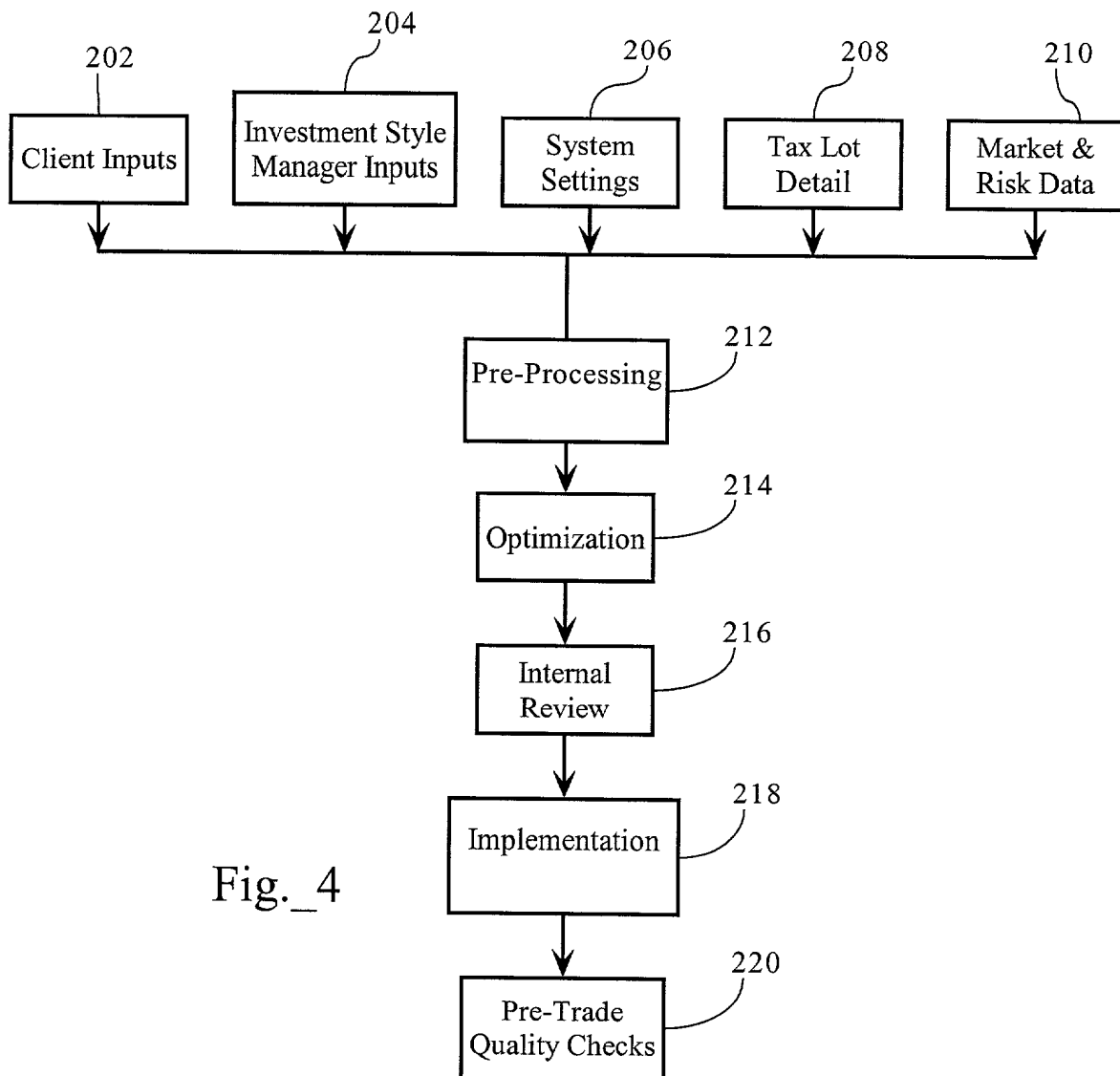


Fig. 4

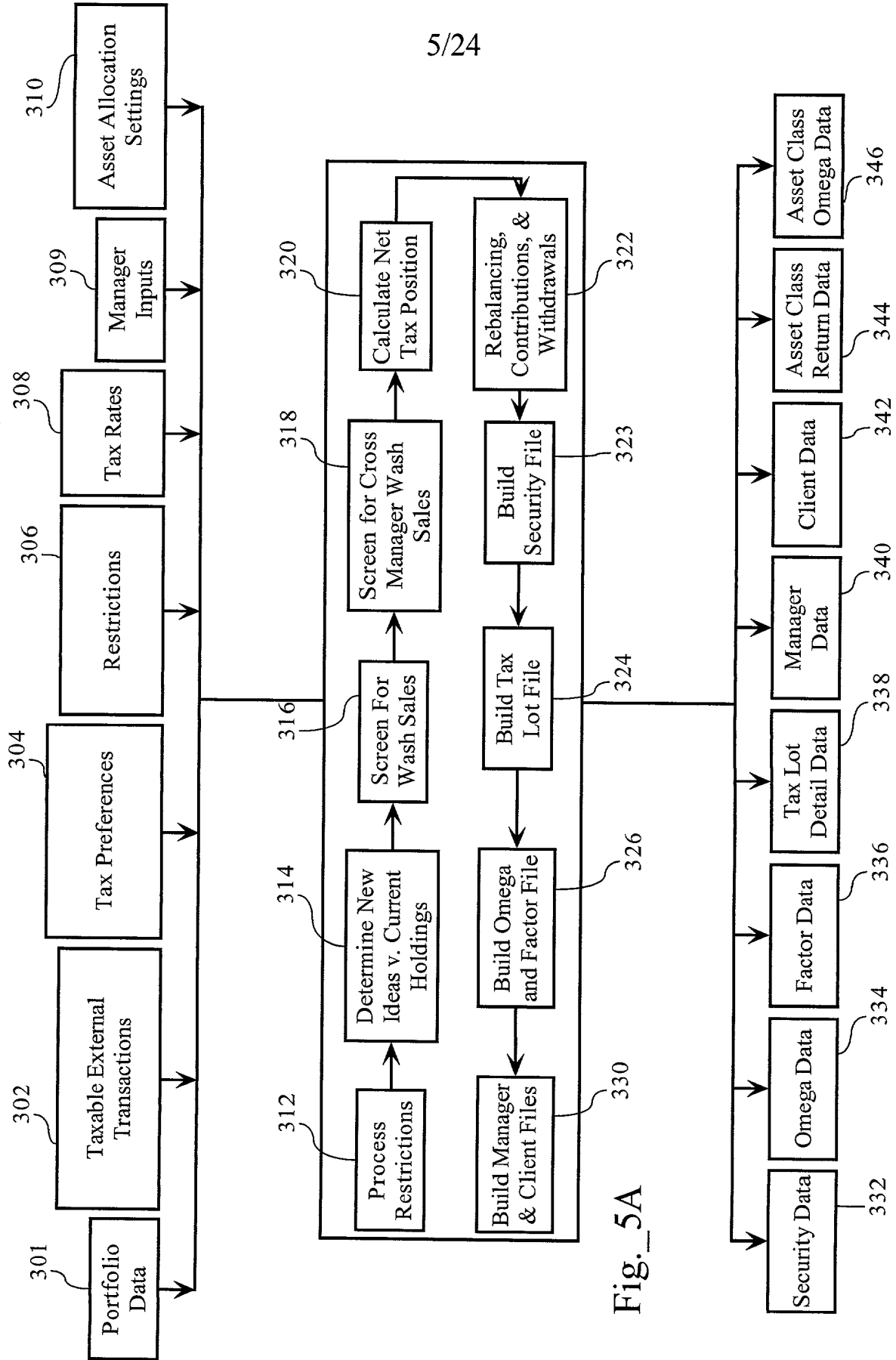


Fig. 5A

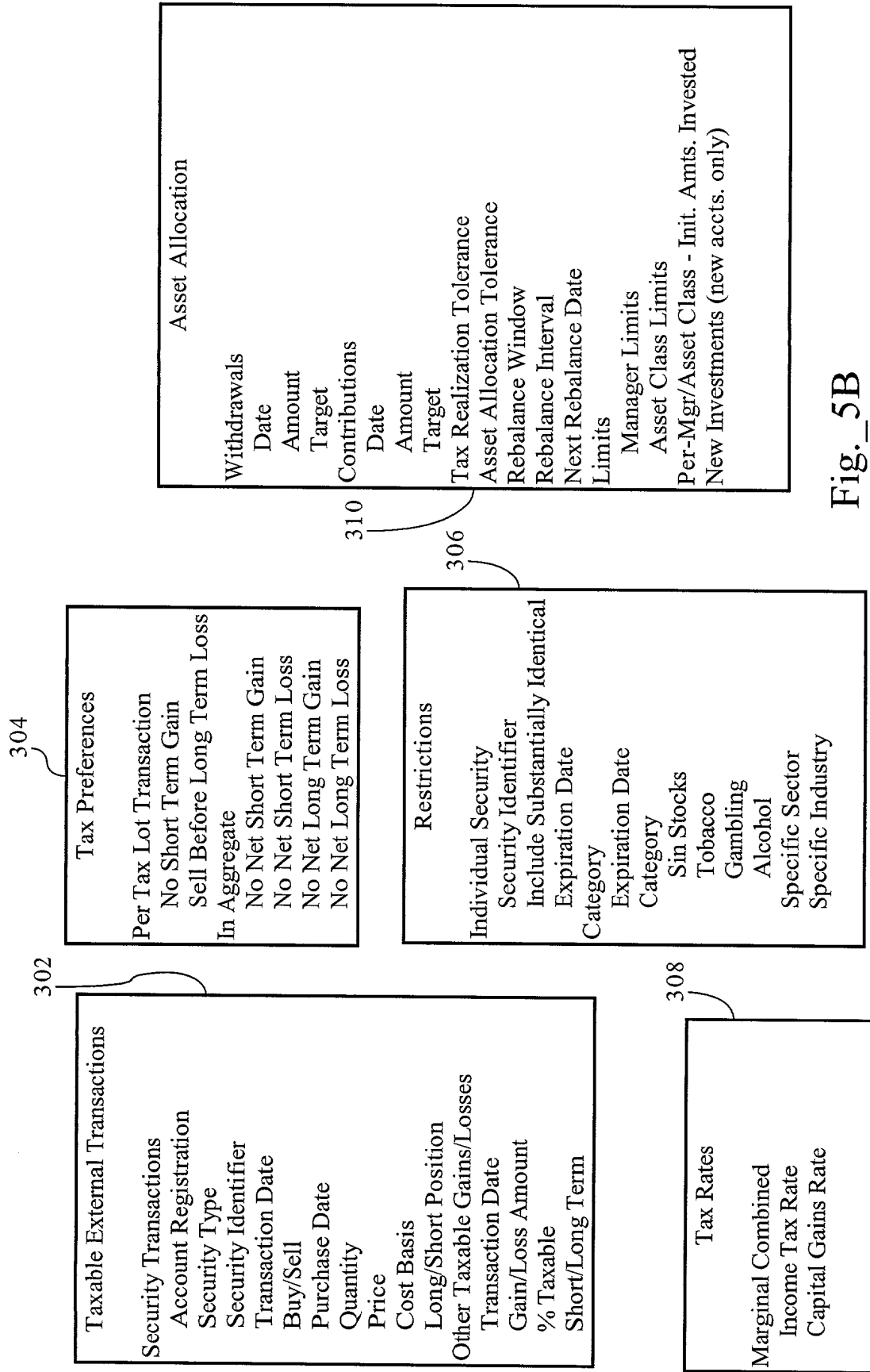


Fig. 5B

FIG. 5C is a block diagram of a system architecture for managing investment data. The system includes a central database (334) that stores client data (342), manager data (340), and asset class data (346). The client data (342) includes information such as income tax rate, capital gains rate, and portfolio value. The manager data (340) includes information such as asset class ID, tracking error, and minimum/maximum factor exposure. The asset class data (346) includes information such as asset class return data, asset class name, and asset class abbreviation. The system also includes a security data module (332) and a tax lot detail data module (338).

Security Data	
Manager	
GVKEY	
Lower Bound (LB)	
Upper Bound (UB)	
Active Weight Lower Bound	
Residual Variance	
Benchmark Weight	
Capital Gains Alpha	
Excess Yield Alpha	
Locked (Y/N)	
Max. Weight	
Cross Man. Wash Sale #	
Factor Exposures	

Omega Data	
Manager	
I, Row	
J, Column	
Omega i,j Element	

Factor Data	
Manager	
Factor Number	
Factor Name	
Factor Abbreviation	
Factor Alpha	
Minimum Factor Exposure	
Maximum Factor Exposure	

Manager Data	
Asset Class ID	
Tracking Error (y/n)	
J, N, X, TL	
Minimum Capital Gains Alpha	
Maximum Capital Gains Alpha	
Minimum Yield Alpha	
Maximum Yield Alpha	
Lambda 1	
Lambda 2	
Conditional Summation Constraints	
Conditional Factor Loadings	
Minimum Allocation	
Maximum Allocation	
RWID	
Minimum Relative Allocation	
Maximum Relative Allocation	

Tax Lot Detail Data	
Manager	
GVKEY	
TaxLotID	
Cost to Buy	
Cost to Sell	
Upper Bound of Buy (bi)	
Lower Bound of Sell (si)	
Upper Bound of Sell (si)	
Ti	
Tax Lot Status	
Current % (Ci)	
Cross Man. Wash Sale #	
Lock Buy (y/n)	
Lock Sell (y/n)	
Forced Sell (y/n)	

Client Data	
Income Tax Rate	
Capital Gains Rate	
Lambda O	
Lambda T	
Amortization Factor	
Q, M, H	
Total Portfolio Value	
External Transactions	
ST Loss	
ST Gain	
LT Loss	
LT Gain	
Tax Constraints	
LB(STL), UB(STL)	
LB(STG), UB(STG)	
LB(LTL), UB(LTL)	
LB(LTG), UB(LTG)	
LB(NST), UB(NST)	
LB(NLT), UB(NLT)	
LB(NG), UB(NG)	
UB Tax1, UB Tax2, UB Tax3	

Asset Class Omega Data	
Asset Class ID1 (a)	
Asset Class ID2 (b)	
VCV i,j Element	

Asset Class Return Data	
Asset Class ID	
Asset Class Name	
Asset Class Abbreviation	
Forecasted Return	
Lower Bound	
Upper Bound	

Fig. 5C

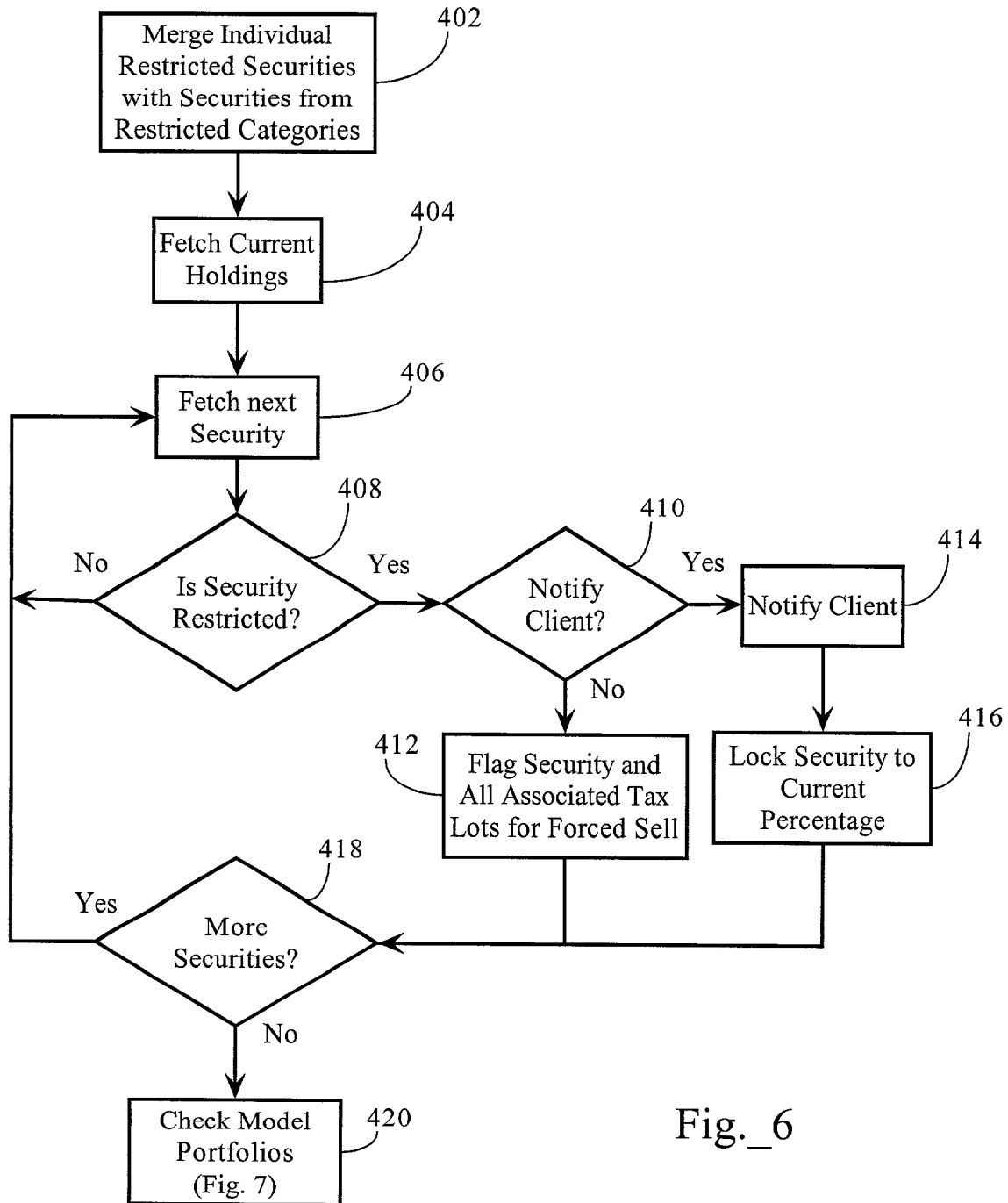


Fig._6

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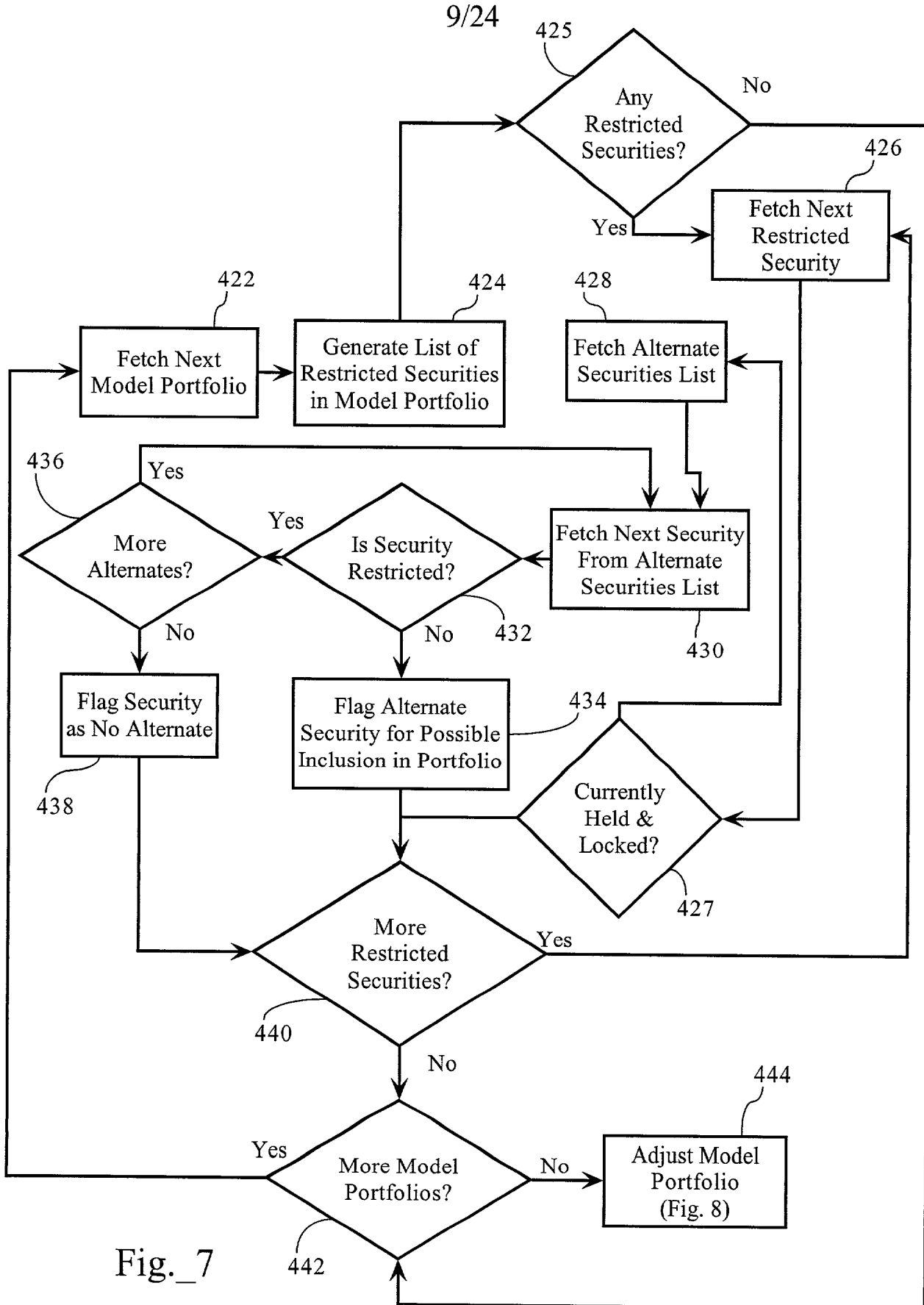


Fig._7

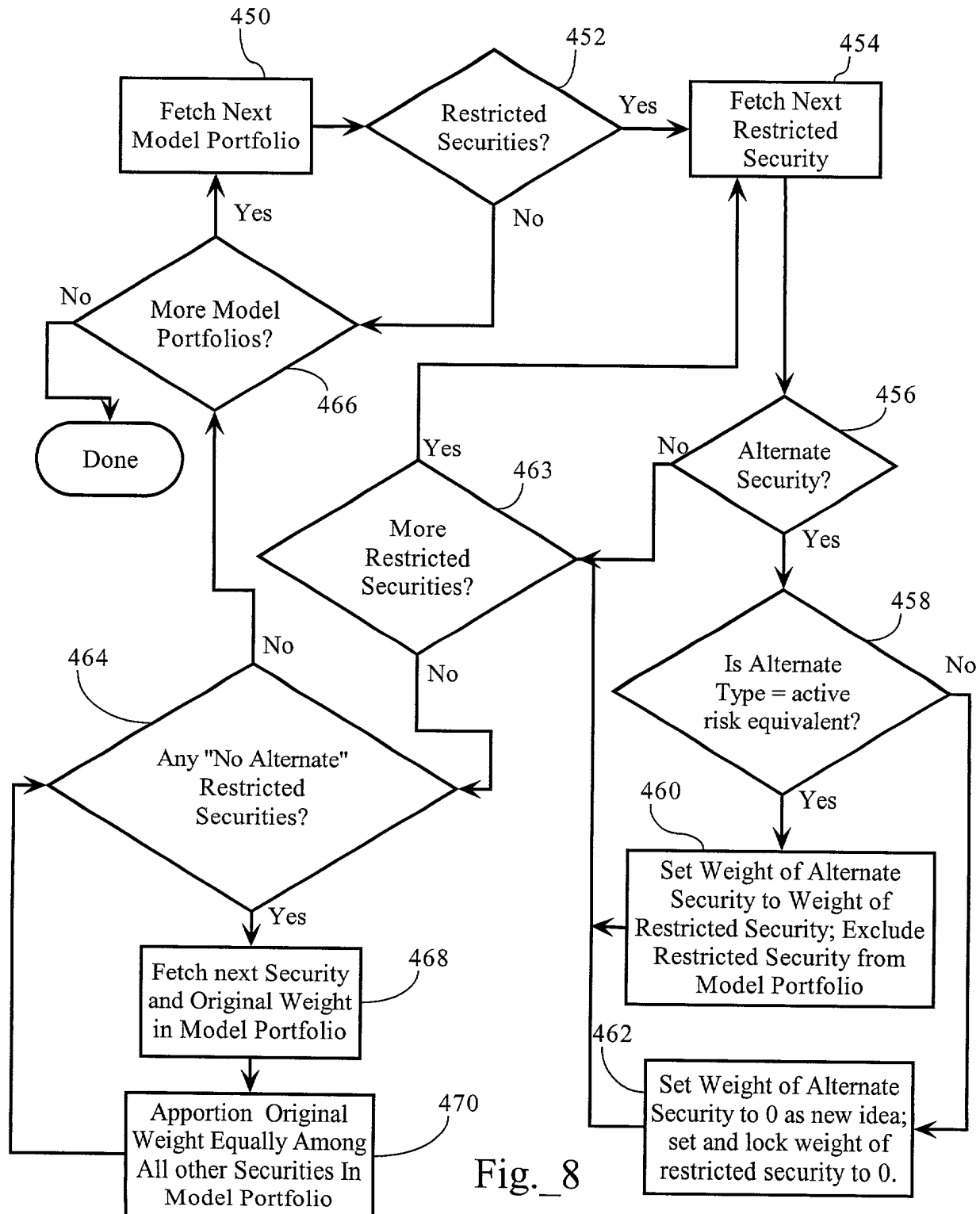
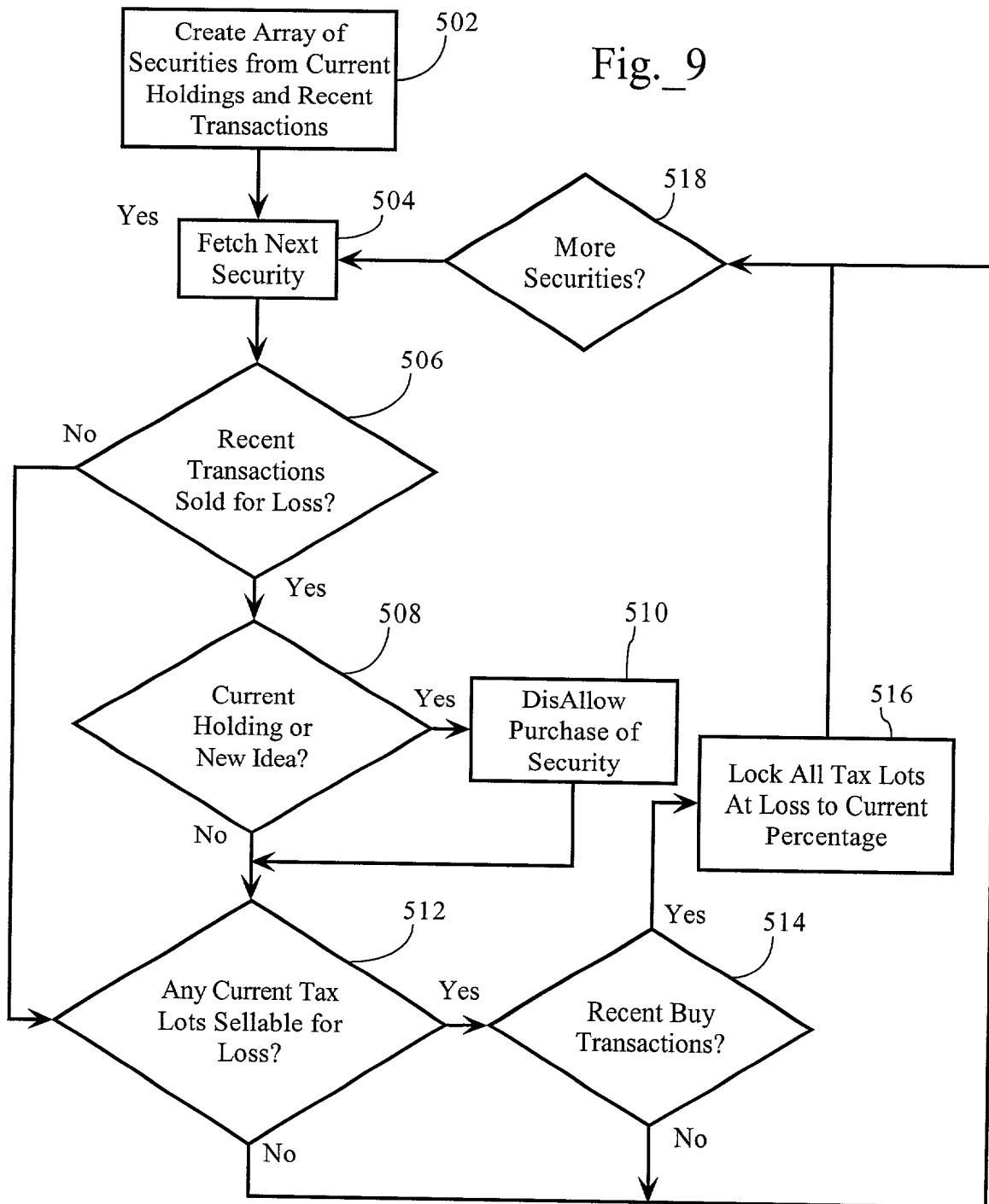


Fig. 8

Fig. 9



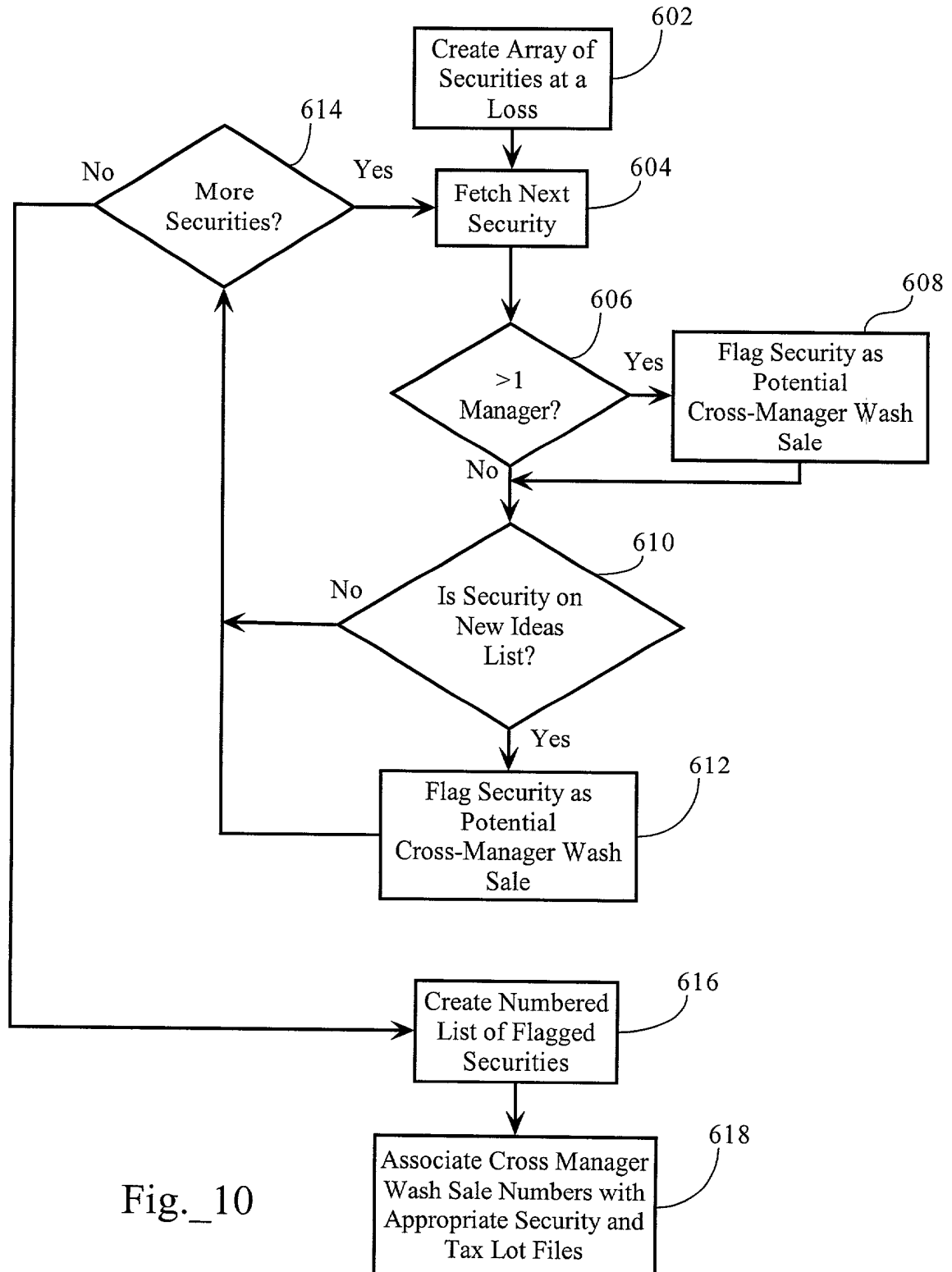
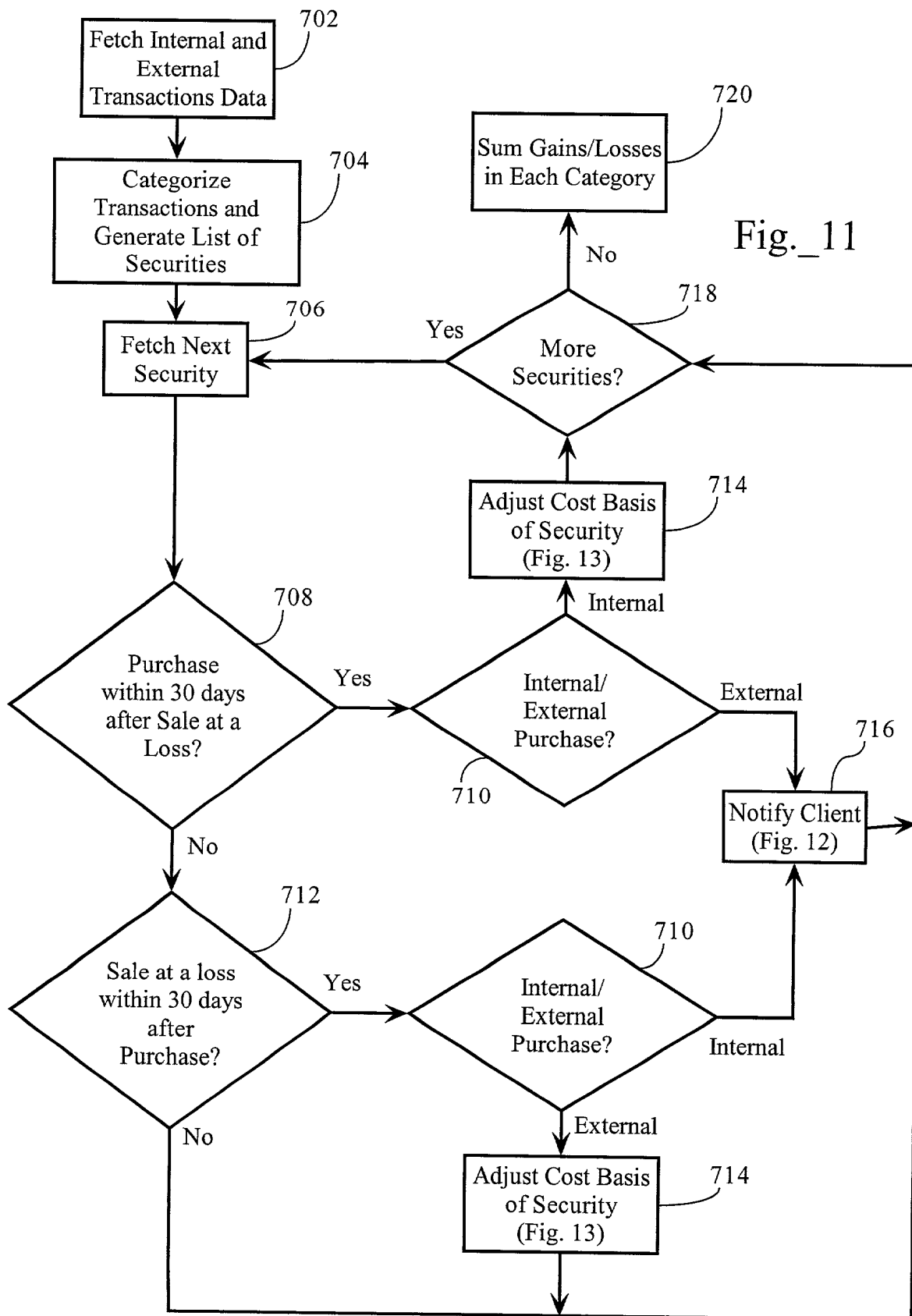


Fig._10



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Fig. 12

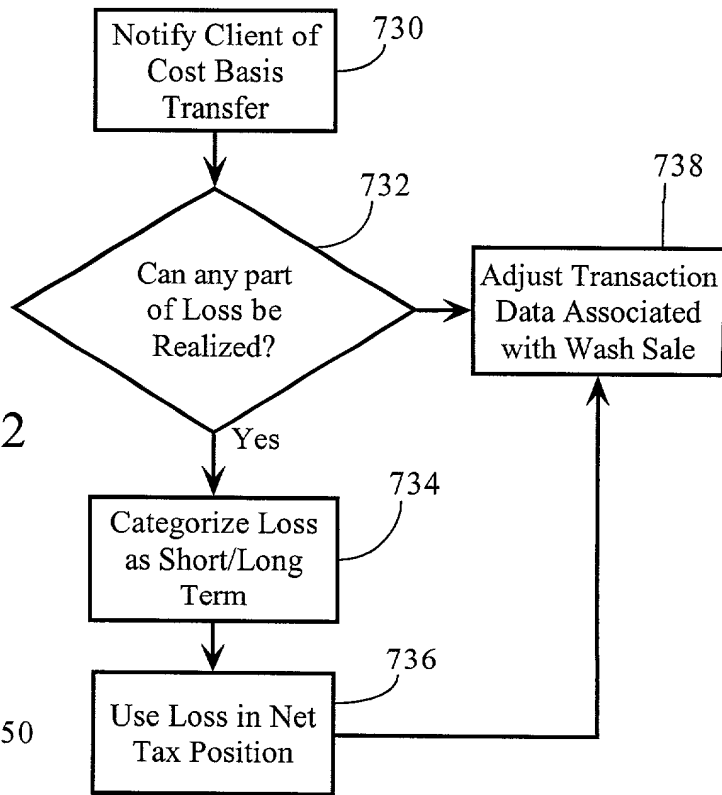
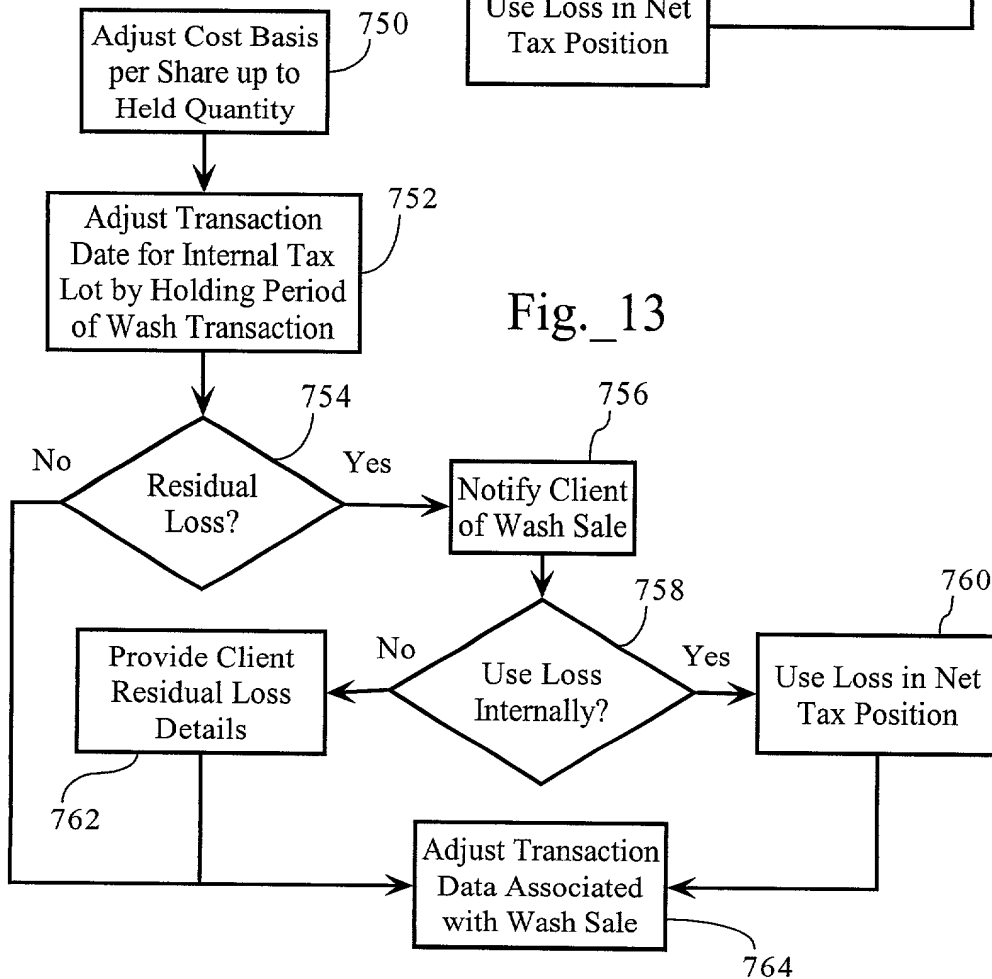


Fig. 13



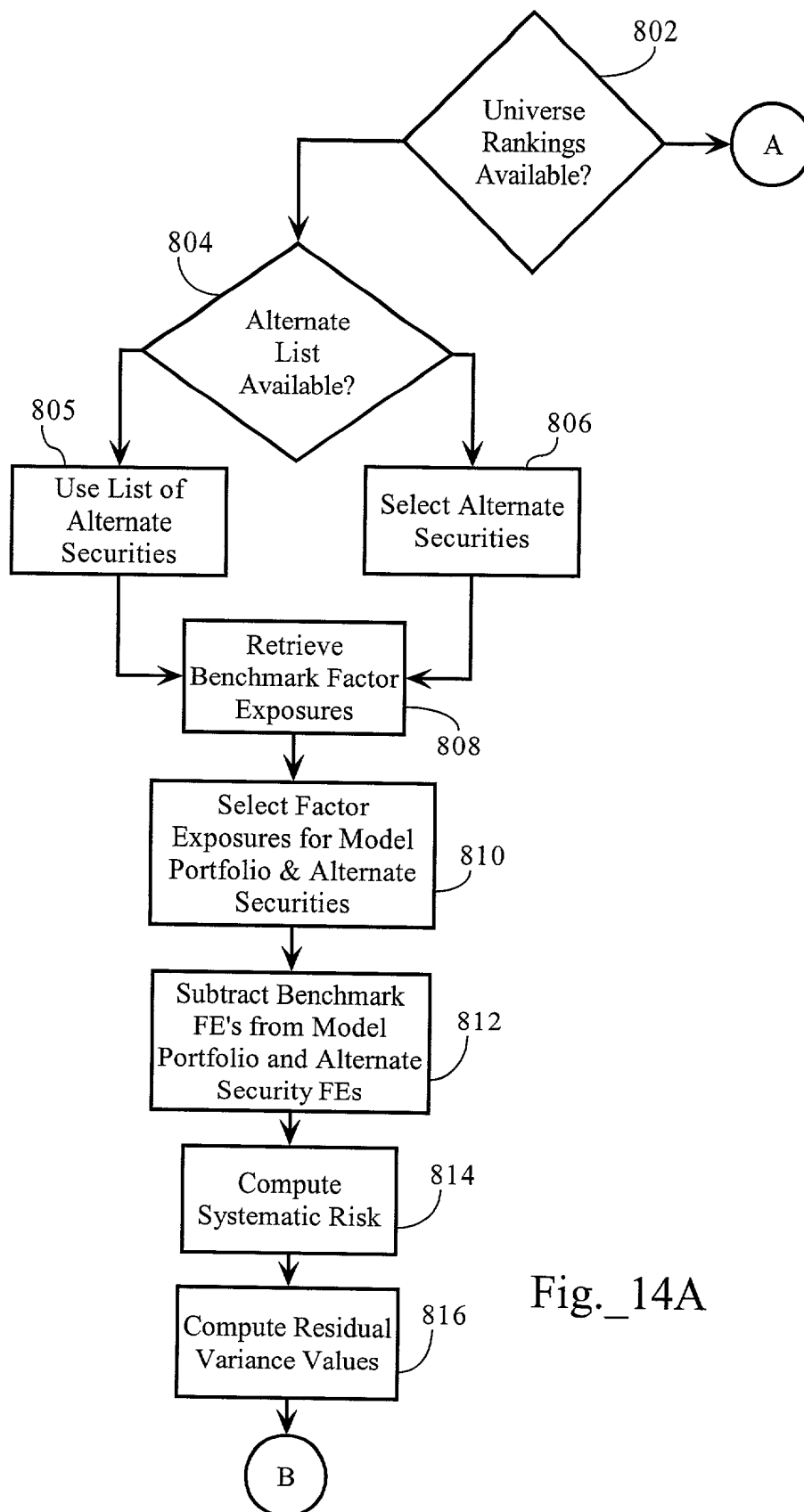
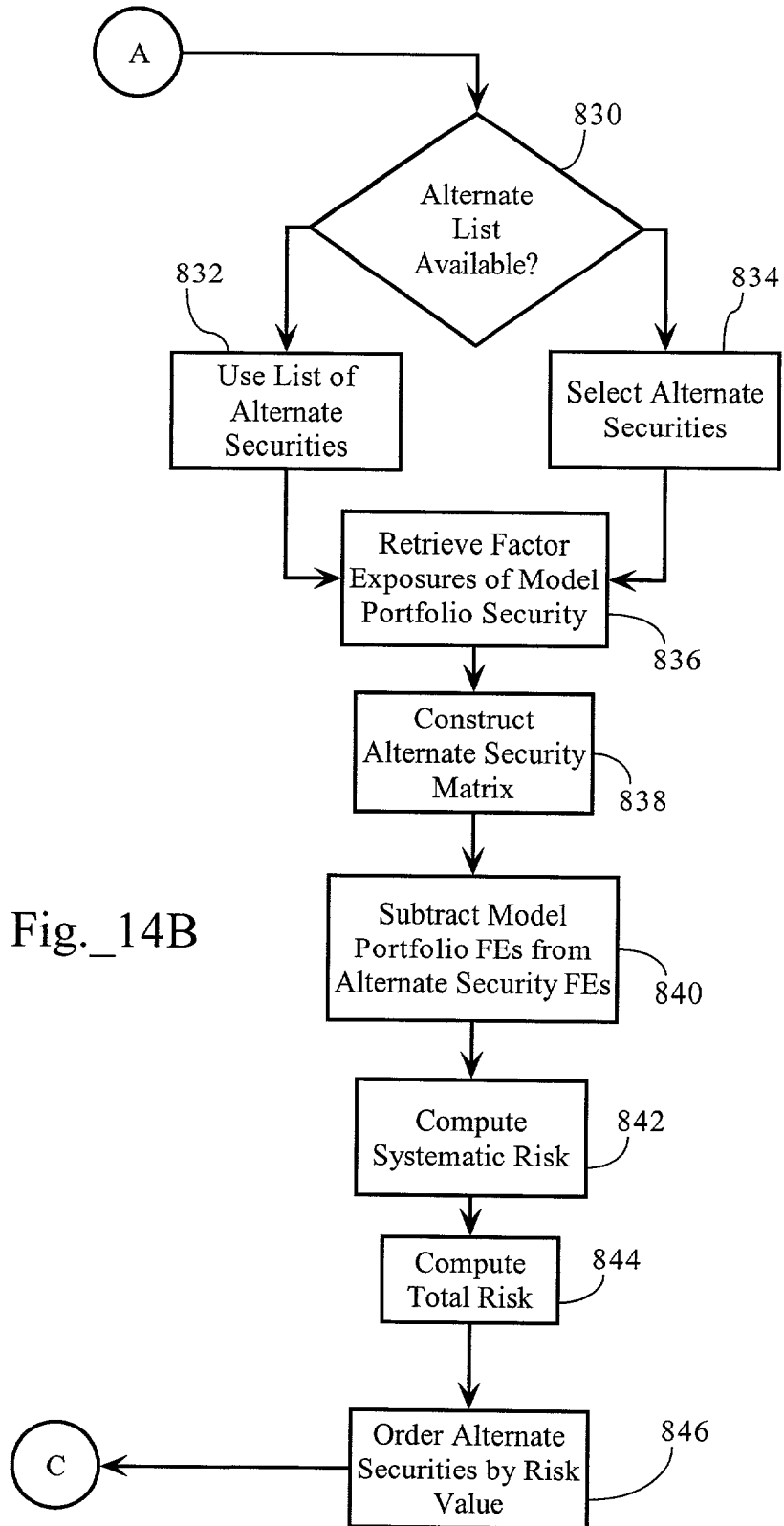
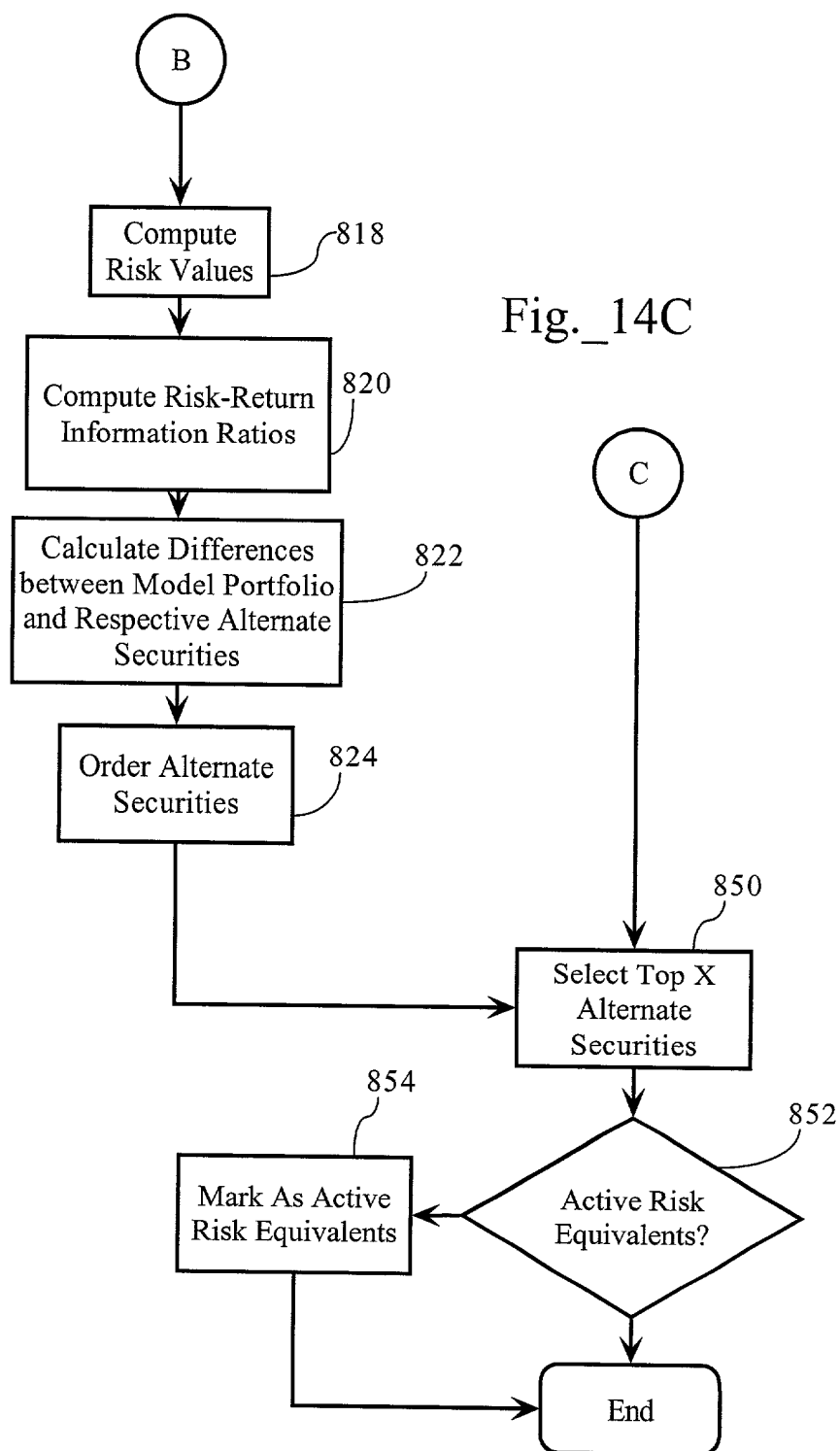


Fig._14A





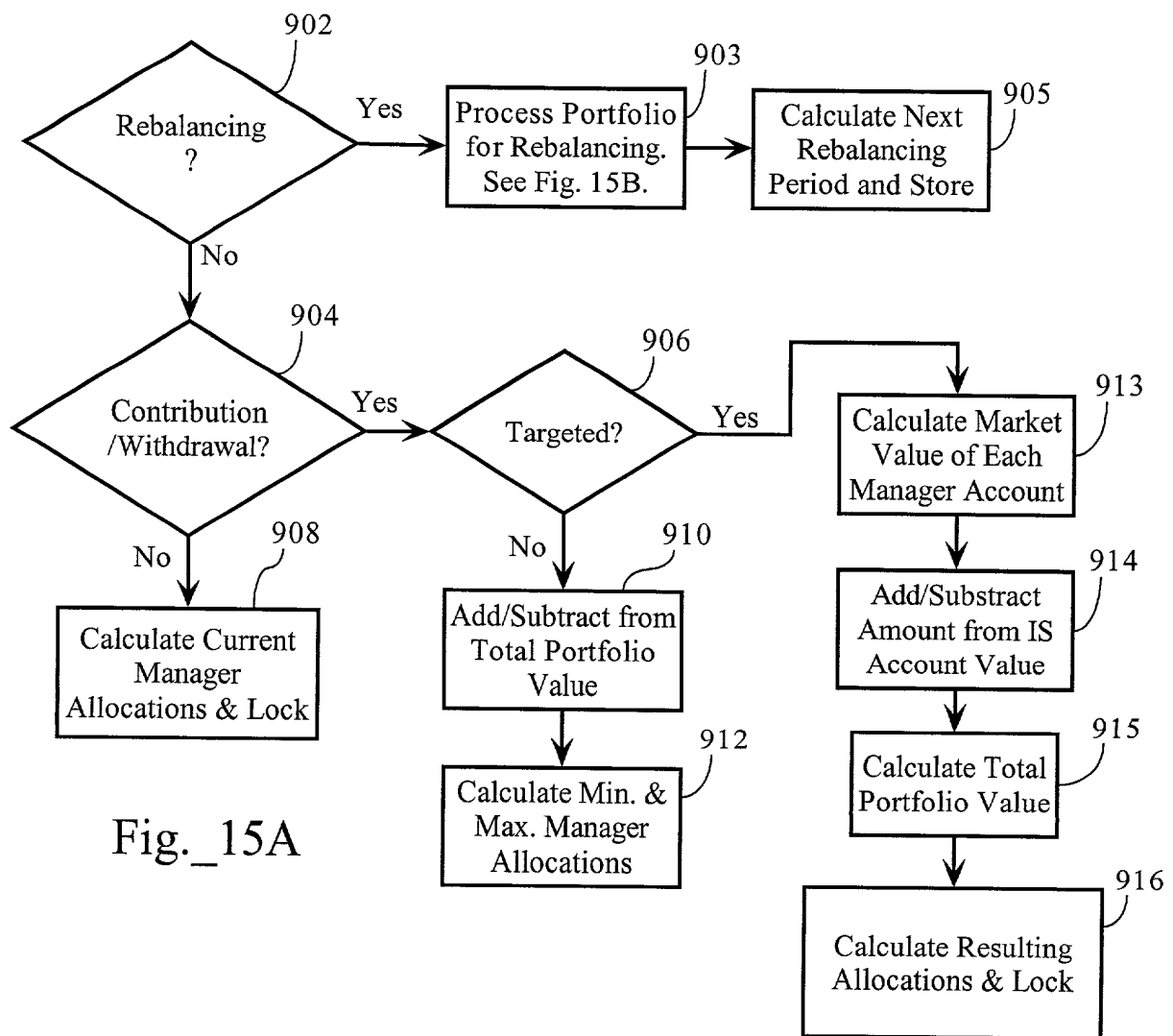


Fig._15A

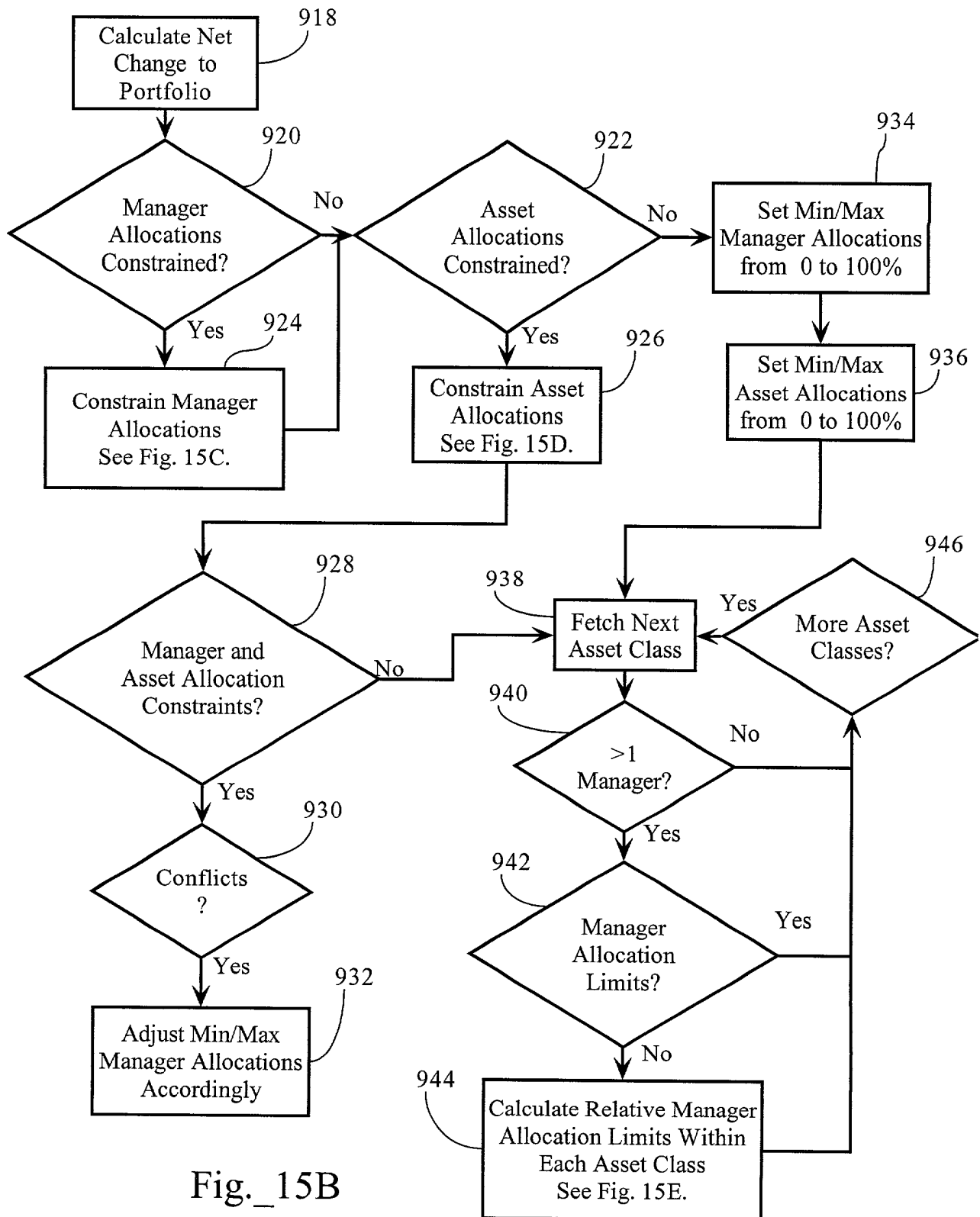
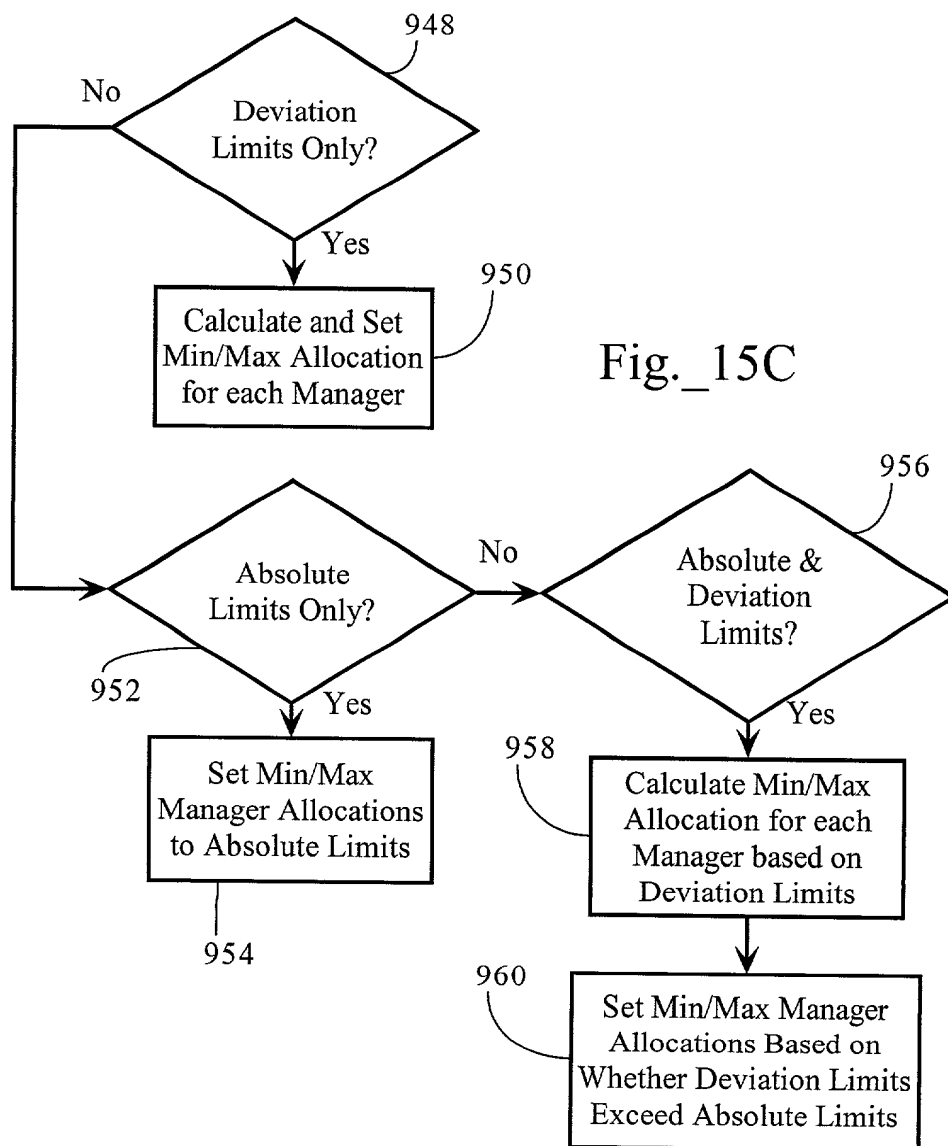
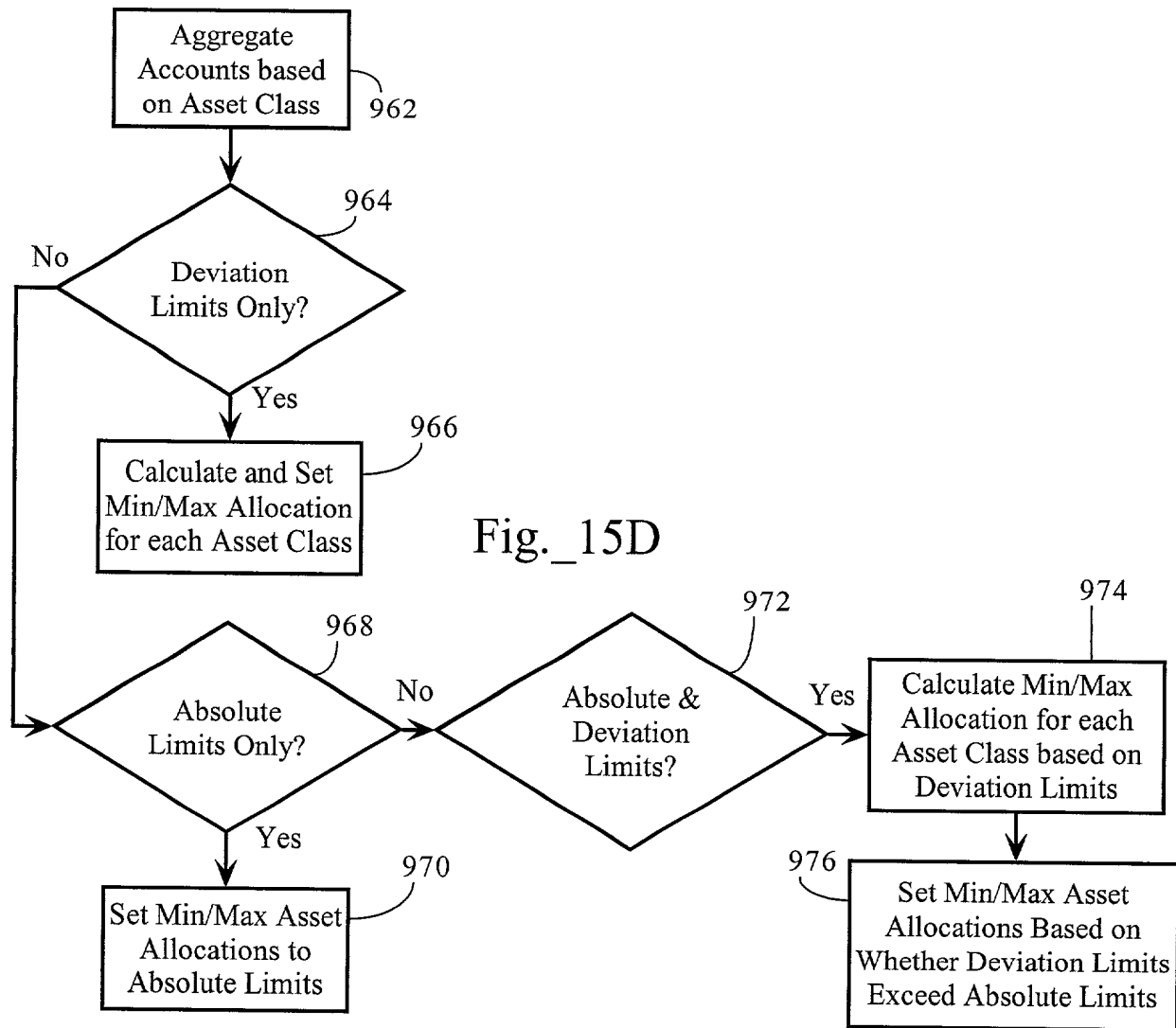


Fig. 15B





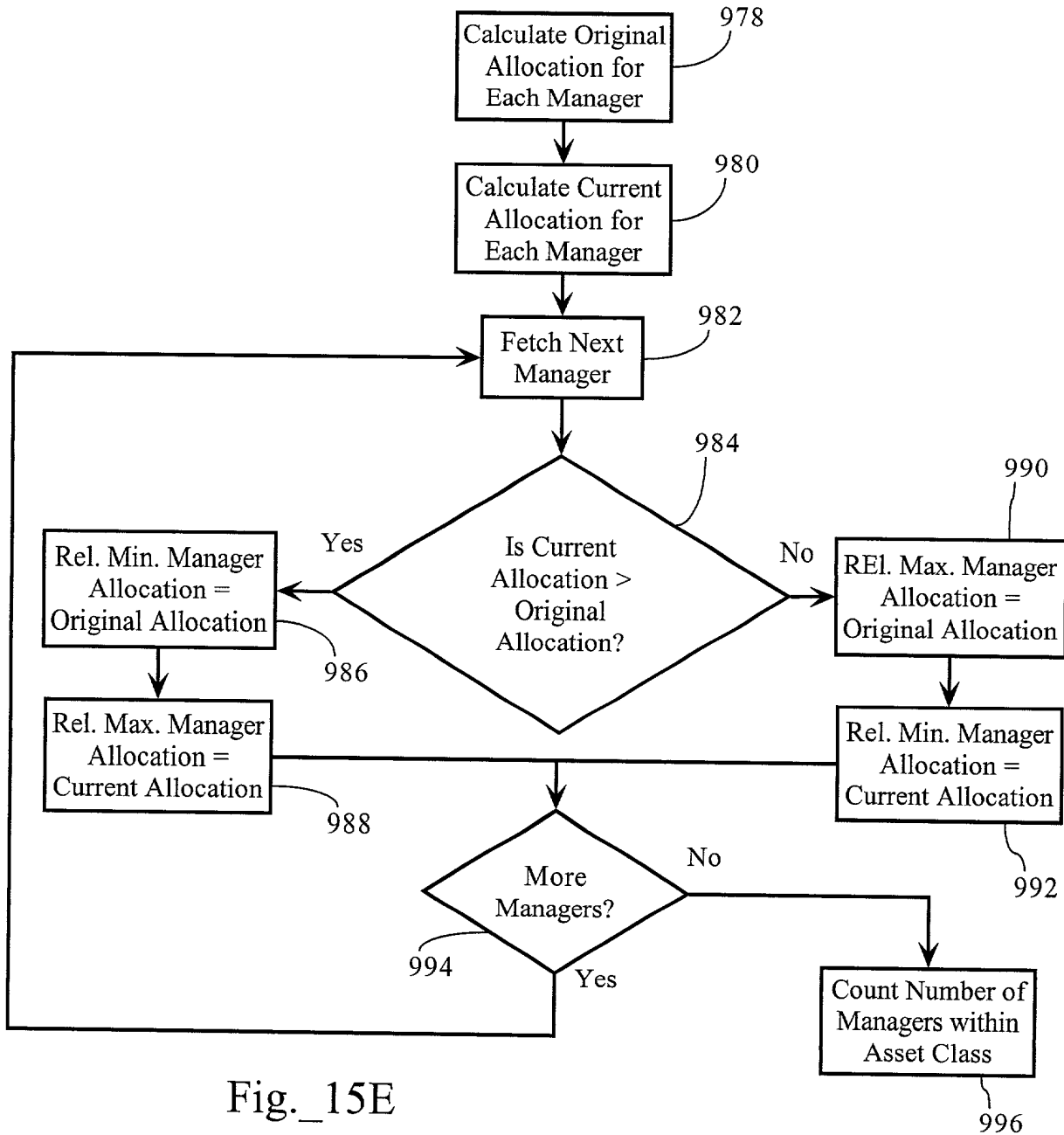


Fig._16

Fig._16

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A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	
1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
2	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	
3	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z		
4	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z			
5	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z				
6	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z					
7	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z						
8	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z							
9	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z								
10	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z									
11	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z										
12	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z											
13	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z												
14	N	O	P	Q	R	S	T	U	V	W	X	Y	Z													
15	O	P	Q	R	S	T	U	V	W	X	Y	Z														
16	P	Q	R	S	T	U	V	W	X	Y	Z															
17	Q	R	S	T	U	V	W	X	Y	Z																
18	R	S	T	U	V	W	X	Y	Z																	
19	S	T	U	V	W	X	Y	Z																		
20	T	U	V	W	X	Y	Z																			
21	U	V	W	X	Y	Z																				
22	V	W	X	Y	Z																					
23	W	X	Y	Z																						
24	X	Y	Z																							
25	Y	Z																								
26	Z																									

	w ₁	w ₂	w ₃	w ₄	w ₅	F ₁	F ₂	F ₃	b ₁
w ₁	$-\lambda_u \sigma_{w1}^2$	0	0	0	0	0	0	0	0
w ₂	0	$-\lambda_u \sigma_{w2}^2$	0	0	0	0	0	0	0
w ₃	0	0	$-\lambda_u \sigma_{w3}^2$	0	0	0	0	0	0
w ₄	0	0	0	$-\lambda_u \sigma_{w4}^2$	0	0	0	0	0
w ₅	0	0	0	0	$-\lambda_u \sigma_{w5}^2$	0	0	0	0
F ₁	0	0	0	0	0	$-\lambda_s \sigma_{F1}^2$	$-\lambda_s \sigma_{F2,1}$	$-\lambda_s \sigma_{F3,1}$	0
F ₂	0	0	0	0	0	$-\lambda_s \sigma_{F1,2}$	$-\lambda_s \sigma_{F2}^2$	$-\lambda_s \sigma_{F3,2}$	0
F ₃	0	0	0	0	0	$-\lambda_s \sigma_{F1,3}$	$-\lambda_s \sigma_{F2,3}$	$-\lambda_s \sigma_{F3}^2$	0
b ₁	0	0	0	0	0	0	0	0	0

Fig._17